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ABSTRACT

Although the main characteristics of procedural discourse are well known, less is known about its various subtypes. Most of the data for the present paper are taken from Category E (skills, trades, and hobbies) in the Brown and LOB corpora, supplemented with examples from computer manuals and a manual for drivers. Following a survey of previous research on procedural discourse, a formulaic definition of procedural discourse is offered: X PRESCRIBE HOW Y DO Z, where X is the knowledgeable text producer, Y the ignorant addressee, and DO Z a complex act. It is shown that variation in text type is largely due to the nature of this macro-act and the degree of directness/indirectness that the text producer adopts toward the reader. (Author/JP)

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Diversifying procedural discourse

KAY WIKBERG

Abstract

Although the main characteristics of procedural discourse are well known, we know less about its various subtypes. Most of the data for the present paper are taken from Category E ('Skills, trades and hobbies') in the Brown and LOB corpora, supplemented with examples from computer manuals and a manual for drivers. After a survey of previous research the essential character of procedural discourse is represented by the formula X PRESCRIBE HOW Y DO Z, where X is the knowledgeable text producer, Y the ignorant addressee, and DO Z a complex act. It is shown that variation in text type is largely due to the nature of this macro-act and the degree of directness/indirectness that the text producer adopts towards the reader.

1. Introduction

'Procedural' discourse makes up a common category which we are all confronted with from time to time. It is often mentioned as one of the major discourse categories side by side with the 'descriptive', 'narrative', 'expository', and 'argumentative'. However, for various reasons procedural or 'instructive' discourse has attracted less attention than the others.

One reason may be that it is less academic than other genres: it is first of all concerned with how to do things rather than narrating or arguing. Two concrete exponents of procedural discourse are recipes and guide books, both of which can serve to teach us about the world. By contrast, there is not necessarily anything intellectually exciting about manuals or technical instructions. Generally, we do not read them in order to enrich our view of the world, and we certainly do not enjoy them as artistic expression, nor do such texts generally affect our beliefs or values.

Potentially, procedural texts influence people's behaviour. For a procedural or instructive piece of discourse to be acceptable it must be written in such a way that the reader can follow the instructions, advice, guidance, and so forth that the text provides. The prototypical procedural text always has some sort of practical application to the actions of individuals or groups of people. Since the use of figures and illustrations is very common in procedural discourse, a full account of coherence would have to consider the relationship between the actual text and illustrations, but this will not be attempted here.

Quite a few procedural texts are written for pedagogical purposes, for example, to instruct and teach people to use computer programmes. This last category is

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becoming more and more important. There is an obvious pedagogical challenge in writing for readers of varying experience.

Sometimes procedural texts do not achieve their desired effect. Technical instructions which presuppose too much or which fail to help the reader are a nuisance. If a manual is to serve its purpose, its user must be able to learn from it and rely on it.

Procedural discourse is strongly *context-dependent*, i.e. its organization is very closely linked with chains of events, ranging from events which the actor has full control over to situations which contain elements of risk or danger and which are marked by varying degrees of unpredictability. In some instances there may be alternative procedures open to the text user depending on what s/he is expected to do, but the choice of procedure at a given point is usually limited by the previous step(s) in a sequence of acts.

As far as I know, procedural discourse has not been subjected to much systematic research in English. One exception is a paper by Smith (1985) in which he investigates the relative importance of linguistic features as indices of text type. He uses a very limited corpus, 8 scientific texts of roughly 1,000 words each. However, only 3 of these were procedural texts. Smith concludes that

> the overall text-types of procedural and behavioral discourse cannot be established merely on the basis of proportional dominance of a certain clause text-type,... (Smith 1985: 239)

Another researcher who has analysed procedural discourse (travel-guides) is Virtanen (1988). She argues that

> A fundamental aspect of instructive, or procedural, texts is their strict conformity to experiental iconicity, which makes explicit markers of time, in their primary function, unnecessary. (Virtanen 1988: 291)

'Experiential iconicity' is defined as "the instances where an isomorphy of some kind exists between the text and our experience of the world." (Virtanen 1988: 107; cf. Enkvist, 1981.)

1.1. Aim, data and method

In this paper I shall examine procedural discourse and some of its general properties. The data are taken from the Brown and the LOB corpora and from some additional texts, including a driver's manual and some computer software handbooks. Section 2 presents a brief survey of previous research and ends with a formulaic definition of

procedural discourse. Section 3 gives a brief account of procedural discourse in Brown and LOB, and, finally, Section 4 describes some of the linguistic characteristics of procedural discourse in English.

2. 'Procedural' versus 'instructive' discourse

2.1. What is a procedure?

Two definitions of 'procedure' found in my *American Heritage Dictionary of the English Language*:

> (i) "a manner of proceeding; way of performing or effecting something";
>
> (ii) "an act composed of steps; course of action".

Both of these definitions fit some of the texts investigated, but (ii) is undoubtedly the interpretation that best conforms with the definitions of 'procedural' given by text linguists.

In computer science a procedure is a subprogramme which can be repeated. It is characteristic of computer programmes that decision-making must be explicit. Alternative courses of action often have to be built into the programme, which explains why conditionals are so common. Such subprogrammes probably make up the most extreme type of formalized procedure.

2.2. What text linguists tell us about procedural discourse

The linguists who have contributed most to our understanding of 'procedural' discourse are Werlich (1976), Longacre (1976; 1983), Trimble (1985), and most recently, Dixon (1987).

Werlich does not use the term 'procedural' but distinguishes between (a) *instructions* (based on a 'subjective view'), and (b) *directions* ('objective'). Of these two subtypes, instructions display more variation and are less formalized and less restricted than rules, regulations, etc. According to Werlich such instructions are practical and

> can be subclassified as ... *work directions, technical instructions, recommendations, precepts, prescriptions, recipes, motions, guides, manuals, etc.* (Werlich 1976: 131)

Regulations, rules, and norms are superordinate social and societal conventions which regulate our behaviour. It would be hard to find any regulations that apply to the

making of a child's high chair (cf LOB E4) or how to do push-ups. By contrast, when driving a car, you have to ask yourself if what you are doing at a particular moment is within the law or if it is safe for you and others. In this paper I shall focus on such procedural discourse as falls under 'instructions'.

Both Werlich (1976) and Trimble (1985) have described some of the linguistic properties of instructions in English. According to Werlich, written instructions are characterized by commands, and statements containing the auxiliaries *should, ought to, have to, must*, or *shall* (1976: 122). These features are obviously inadequate on their own for the characterization of procedural discourse.

Longacre (1983: 3) defines the term 'procedural' as follows:

> Procedural discourse (how to do it, how it was done, how it takes place) is plus in respect to contingent succession (the steps of a procedure are ordered) but minus in respect to agent orientation (attention is on what is done or made, not on who does it).

Like procedural discourse narrative is +[contingent (temporal) succession], but it is +[agent orientation]. The former feature "refers to a framework of temporal succession in which some (often most) of the events or doings are contingent on previous events or doings" (1983: 3).

In a previous book Longacre (1976: 200) established the further linguistic features of narrative and procedural texts in the following way:

NARRATIVE	PROCEDURAL
1. First/Third person	1. Nonspecific person
2. Agent oriented	2. Patient oriented
3. Accomplished time	3. Projected time
4. Chronological linkage	4. Chronological linkage

'Nonspecific person' is typically manifested as *you*, but since procedural discourse is patient-oriented, it is natural that you can expect a high frequency of passive clauses with patient subjects. In the investigated corpus a marked exception to the use of 'nonspecific person' is Brown E2, which reports on how the writer (1st person) looks after her garden, thus providing the reader with a model.

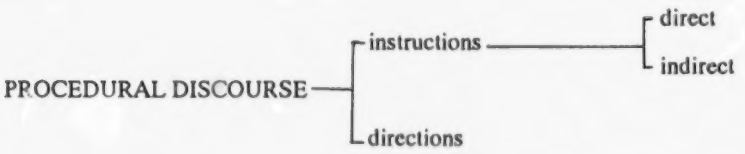
Projected time is manifested as present tense, modals (including *will*) + infinitive, and imperatives. These features can be further supplemented with *if-* and *when-*clauses and purpose clauses in thematic position.

Although prototypical procedural discourse and narrative share temporal sequentiality, the former differs in its main purpose, that of representing a description of a course of actions which together makes up a procedure, a macro-act, if you like. A crucial property of procedural discourse which implicitly underlies Longacre's

notional category is that of *purpose*. He envisages an underlying abstract performative verb PRESCRIBE (or RECOUNT for 'how it was done') for procedural discourse. This may then have other subordinate performatives such as ADVISE, RECOMMEND, SUGGEST, and so forth. It is the overall purpose of the text that allows you to consider it a kind of macro-act.

Trimble distinguishes two types of instructions, direct and indirect. With reference to Werlich's examples, the imperative form would be direct, whereas the use of modals and the passive would be indirect. Fig. 1 gives a crude representation of procedural categorization so far.

Figure 1.



Antoinette Renouf defines 'procedural' as follows:

> Procedural texts give advice on how to proceed in a given area, if the reader has given aims. They do not exhort the reader to do a particular thing, but only provide relevant facts, and suggest what is intended to be an appropriate course of actions, should the need be there. (Renouf 1987: 13)

While travel guides can be highly descriptive and allow the addressee a great deal of freedom as to what to look at and in what order, a technical handbook often contains accounts of very strictly ordered procedures.

When describing his textual dimensions, Biber (1988: 140) makes this distinction between 'procedural' and 'expository' discourse:

> Procedural discourse differs from expository discourse in that it is event-driven and concrete rather than conceptual and abstract, but with respect to Dimension 2 these two types of discourse [descriptive + procedural] are similar in that they frequently use non-past verbal forms and attributive adjectives rather than past tense forms, third person animate referents, etc.

By 'Dimension 2' Biber refers to "discourse with non-narrative purposes (expository, descriptive, or other)" (1988: 115). What Biber says about attributive adjectives may be purely accidental and probably has to do with his choice of text (Brown E07, "Interlocking frames"). Thus, it would hardly apply to procedural discourse in general.

An interesting question raised by Dixon (1987) is whether procedural discourse can have the same kind of representation as a text belonging to one of the other major discourse categories, i.e. is it the case that procedural discourse represents a "mental plan", which does not simply reflect the information present in the text but also, or rather, the way in which the representation may be used (ibid: 70)? Dixon argues that

> In contrast to other discourse forms, the appropriateness of a mental plan is determined primarily by the task, not by the directions from which it was constructed. That is, a plan is appropriate if it allows one to perform the task correctly and efficiently. (Dixon 1987: 71)

Since a given event may presuppose another event, it seems reasonable to assume that where you are dealing with a strict procedure involving a sequence of events or actions, what van Dijk terms a "compound act" (1977: 177), textual coherence is dependent on to what extent it conforms to such a plan. There is a global intention behind the text and unless that intention is realized as a compound act, it will be unsuccessful, at least in part. The addressee may have an incomplete mental plan in his mind, but by following the instructions the plan will be completed.

To sum up: it is possible to capture the essential character of procedural discourse with the formula

X PRESCRIBE HOW Y DO Z

where X = the knowledgeable text producer, Y the ignorant addressee, and DO Z the goal. The macro-act PRESCRIBE belongs to the DIRECTIVE type of illocutionary acts, but its more specific micro-acts, like ADVISE, CAUTION, RECOMMEND, SUGGEST and WARN are all rather low in illocutionary force compared with ORDER, COMMAND or even REQUEST. This explains the high frequency of indirect instructions in most of the texts examined.

3. Standardized corpora and procedural discourse

For this paper I have gone through Category E ("Skills, trades and hobbies") in the Brown and the LOB corpora. There are also some passages from computer software manuals and a manual for drivers.

Category E in the Brown Corpus contains 36 texts, the LOB Corpus 38 texts of 2,000 words each, i.e. in all 148,000 words. Since Category E was not established on the basis of discourse theory, it is not surprising that it contains text samples that are primarily expository or descriptive. Also, the texts that can be classified as procedural

are by no means procedural throughout. In all, the corpus comprises about 82,000 words.

However, in this connection I am not interested in detailed statistics. Instead my observations on text type are based on the overall impression given by reading the texts.

Some examples of what the corpus contains of instructions may be in order. From the texts in Brown and LOB I learn how to do push-ups, and after that I am told how breakfast should best be served in bed. I can then go out in the garden and try to remember what I have learnt about making a vegetable garden, or growing pansies. In the swimming pool I am reminded to check whether the walls feel slippery. There is detailed advice on how to look after the pool and what to do in different situations at different times of the year.

Alternatively, I can follow a very strict waltzing procedure with my wife, who afterwards has the chance of learning how to do crochetwork or make advanced pottery. Meanwhile, I myself learn how to use an electric drill because I am going to build my own house and a boat (there are instructions for that as well). Finally, if I am living in the country, I can learn about feeding pigs (GB) and beef cattle (US). And if I get tired of all this, I can try to escape to my computer and learn some programming.

4. Some linguistic characteristics of instructions

The simplest kind of instruction is one which involves a sequence of events in which each event is dependent on one or more previous events, as in crocheting:

(1) Step 1 - Make a Loop.
1. Grasp thread near end between thumb and forefinger.
2. Make a loop by lapping long thread over short thread.
3. Hold loop in place between thumb and forefinger.

(LOB E1 193-6)

There are 5 steps in the whole procedure, but each step consists of 1-3 acts. The grammar in such brief instructions resembles that of headlines, but its distinctive features are the initial imperatives, and the use of process and place adjuncts (Quirk et al 1985). The verbs are usually transitive.

Simple procedures like these could be called SCHEMAS, to adopt a term used both in situational semantics and artificial intelligence. Schemas are typically repeated and can make up a sequence of events on their own or be part of a longer procedure. It follows that schemas would be a characteristic of procedural texts.

A slightly more complex sequence of events is represented by this passage from a handbook on how to use DataEase, a database program:

(2) To change directories:

> 1. Select 0:NONE from the window menu and press RETURN.
> 2. Press the Up Arrow key (↑) once to move the cursor into the Directory field, the existing directory name disappears.
>
> 3. Press F6 FIELD CLEAR and the existing directory name disappears.
>
> 4. Type C:\DEASE\TUTORIAL and press RETURN. DataEase displays a window menu that lists the names of the databases in the directory. (DataEase 1988: 1-3)

The goal or purpose is explicitly indicated in the initial purpose clause (*To change directories*). Numbering marks the ordering of the steps. In this extract, (1) and (4) each represents two events, which simply illustrates that a sequence of events can be embedded in a bigger event. (2) indicates that there may be a choice between a single act or event and a repeated act (event). In addition, (2)-(4) contain descriptions of the results of the various acts. These are part of the 'instructional information', i.e., to quote Trimble:

> ...discourse that 'assists' instructions by providing corollary information: cautions, warnings, specifying statements, descriptions, and theoretical considerations. (Trimble 1985: 96)

The role of such information varies in different types of procedural discourse. Its share is bigger in texts which are explicitly user-oriented, as in pedagogical texts.

The use of initial PURPOSE clauses (or equivalent expressions) is a particularly common way of opening a paragraph in some types of procedural discourse, as in computer manuals:

> (3) To join one document into another, follow these steps:...
> (Alfieri, 1988: 61)
>
> (4) To leave this menu without doing anything, press F1 Cancel,..(ibid, 84)

Both clauses could have been expressed by *if*- or *when*-clauses:

> (3') If (When) you want to join one document....
> (4') If (When) you want to leave this menu without ...

The specification of contingency by *when*- or *if*-clauses is also extremely common in manuals:

> (5) *When* you type 5 or c [Cartridges and Fonts], WordPerfect displays the select printer: cartridges and fonts screen. *If* you have a conventional printer, you'll see one or more selections under the Resource column. *If* you have a laser printer, you'll work with both the Cartridge Fonts and maybe the Soft Fonts resources (Chapter 35). (Alfieri, 1989: 105; italics mine, KW)

If-clauses suggest more clear-cut options than *when*-clauses. Tottie (1986: 113) shows that finite *if*-clauses are more common in speech than in writing and attributes the differences in distribution to situational and stylistic factors. According to Quirk et al. (1985: 1086), *when* and *if* used in this way can be paraphrased by such prepositional phrases as 'in cases when' or 'in circumstances where'. Characteristically, such contingency clauses are put in sentence-initial position (and even paragraph-initial position), providing the background for the rest of the sentence or paragraph. Conditions are often combined with alternatives.

There are several examples in the Brown and the LOB corpora, such as,

> (6) *When* considering windmills from the photographic viewpoint, it will soon become apparent that they are not the easiest of subjects, and that if something more than "just another record" is to be made of each mill as it is discovered, then *quite a little thought must be devoted to the problems which may arise.* To obtain a really first-class result I consider *it is essential to have a bright sunny day with blue sky and good strong cumulus clouds* - windmills usually look their best against this cotton-wool type of sky. (LOB E10 64-71)

Evaluative statements like *I consider it is essential that*...(an implicit recommendation) are common in this kind of manual.

There are obvious differences between giving advice on taking good pictures and the stricter procedures found in cooking or computing, or repairing your car. If you instruct the buyer of a camera how to put in a new film, this can be expressed by a schema or stepwise procedure, whereas a schema would be more difficult to imagine for instructions on how to take good photographs since photography involves a number of factors to consider simultaneously in specific situations.

The driver's manual contains not only rules and regulations but detailed advice on how to drive a car properly. There is a strong concern with what is safe and lawful. Even so, the fact that the book was written for a wide audience of varying background has set its mark on the style. This is a typical paragraph:

> (7) If you must stop on a road or unload where your vehicle is likely to inconvenience other traffic *use your hazard warning lights* to warn other road users of your presence. But *do not use them as an excuse for parking or stopping where you should not. Remember to switch them off before driving on; they must not be used while your vehicle is moving.* (*Driving*, 1979: 118)

The use of *do not* and *must not* and *should not* are reminders of the driver's duty to obey rules and regulations. They reflect the voice of a superordinate legal authority while in the guide book or the computer manual the one who is in the know is the text-producer. A special case of the expert is the teacher, as in the tutorial-type book, or possibly the elementary cookery book.

Specific indirect instructions

Since the speech acts underlying procedural texts are related to the illocutionary macro-act of directives, it is natural that they should vary in degrees of directness and indirectness. To the specific linguistic features already mentioned I therefore want to add indirect prescriptive acts such as illustrated in the following (italics mine, KW):

(8) *It may be useful to remember that* there will be less splashing when joints are cooked longer, at a lower temperature*; when the meat is covered with foil; when a container is well filled*; and that the oven floor can be protected from spilt juice *if a tray is put under pieces of pies or tarts*. (LOB E25 65-9)

(9) Our experience has taught us that *it pays to buy the best equipment possible*, from pipes to brushes. (Brown E19 161-2)

(10) *Be sure to have plenty of frankfurters and buns on hand.* (Brown E14 147-8)

(11) *It might be a good thing* to have a bottle or two [of Retsina] for the initiated, and stick to a white dry Samos for the majority. (LOB E19 17-19)

(12) *It is essential that* all flowers and foliage appear to be growing from one root or indeed from one bulb. (LOB E23 93-4)

Hedging like that in (8) is an extreme instance of indirectness. A complete analysis of such examples of advice, recommendations, suggestions, etc lies beyond the scope of this paper. The important thing is that the use of such devices contributes to the procedural character of the text as a whole, and that it reflects writer-reader interaction.

5. Conclusions

When classifying procedural discourse it is important that we ask ourselves whether the procedure is primarily used to

- enforce laws, rules, regulations, etc;

- provide information on something the addressee is free to experience (as in guide books);

- instruct or advise the addressee on the best ways of doing something (e.g. doing push-ups, waltzing, taking photographs, taking the carburettor to pieces, driving a car);

- instruct the addressee on how to use tools, instruments, etc;

- instruct the addressee on how to produce something (e.g. make bouillabaisse, build a house, write a computer programme).

The question arises whether 'procedural' is a term that can profitably apply to all those texts in which the addressee is invited to behave in a certain manner. It is likely that there are contexts where we get involved with sequences of events which are not determined by the agent but by external factors or a combination of external and agentive factors. In some of these it would be hard to identify strict steps in a procedure of the kind that the prototype presupposes.

As in the other major discourse categories, it turns out that we are dealing with a scale with typical procedural texts at one end and multi-type indirect instructional texts at the other end. In both the procedural element may be only one of several. A combination of procedural and descriptive/expository elements is quite common whenever the purpose of the text is not simply to indicate ordered complex actions but also to provide information.

Notes

1. For more detailed analysis, see Wikberg, "Discourse Category and Text type: Procedural Discourse in the Brown and LOB Corpora" (forthcoming).
2. "A series of events will be called a sequence of events if they are causally related" (van Dijk, 1977: 170).
3. Barwise and Perry, 1983: 90: "A *schema* S is a set (!) of event-types."

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